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***CLAIMS***

**WE CLAIM:**

1. A spacerless parallel passage contactor comprising multiple adjacent layers of sheet material, said sheet material comprising perforated openings arranged in a regular pattern  
5 and aligned such that the openings in adjacent layers of sheet material overlap to form connected substantially continuous flow passages.
2. The spacerless parallel passage contactor according to claim 1 wherein the sheet material comprises thin adsorbent sheet material comprising at least one active adsorbent  
10 material.
3. The spacerless parallel passage contactor according to claim 2 wherein the active adsorbent material is chosen from the list comprising: molecular sieves, carbon adsorbents, alumina adsorbents, and silica adsorbents.  
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4. The spacerless parallel passage contactor according to claim 3 wherein the contactor is adapted for use as an adsorber bed in a pressure swing adsorption process.
5. The spacerless parallel passage contactor according to claim 3 wherein the  
20 contactor is adapted for use as an adsorber bed in a temperature swing adsorption process.

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6. The spacerless parallel passage contactor according to claim 1 wherein the sheet material comprises thin catalyst support sheet material comprising at least one active catalyst material.

5 7. The spacerless parallel passage contactor according to claim 6 wherein the contactor is adapted for use as a catalyst bed in a catalytic reaction process.

8. The spacerless parallel passage contactor according to claim 1 wherein the sheet material comprises thin heat conductive sheet material.

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9. The spacerless parallel passage contactor according to claim 9 wherein the thin heat conductive sheet material comprises metallic foil.

10. The spacerless parallel passage contactor according to claim 8 wherein the  
15 contactor is adapted for use as a heat exchange core for transferring heat to or from at least one fluid flowing within the flow passages of the contactor.